SECTION 11 - PREVENTING THE SPREAD OF VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE)

I. GENERAL

A. Enterococci are organisms normally found in the gastrointestinal tract and female genital tract. They are opportunistic pathogens which have become a leading cause of nosocomial infection in the United States.

B. The emergence of vancomycin-resistant enterococci (VRE) is of increasing concern. Since 1989 there has been a thirty-four fold increase in VRE infections in intensive care unit patients. A trend toward increased VRE infections was also noted in non-intensive care unit patients.

C. This dramatic increase in vancomycin resistance poses two difficult problems: 1). There is a lack of readily available antimicrobials for treatment of infection due to VRE and 2). Potential transfer of vancomycin-resistant genes present in VRE to other gram positive microorganisms such as staphylococcus resulting in increased antibiotic resistance and increasing treatment dilemmas.

D. Infections resulting from VRE were originally attributed to endogenous sources within the individual, however recent studies of outbreaks have indicated that VRE is readily transmitted from patient to patient via direct or indirect contact with the transiently colonized hands of health care workers, contaminated patient care equipment, or environmental surfaces.

E. Strict adherence to handwashing and barrier precautions is essential in preventing transmission.

F. Vancomycin use has been reported consistently as a risk factor for colonization and infection with VRE and may increase the frequency of the emergence of vancomycin-resistant *Staphylococcus aureus* (VRSA-first documented clinically in 1997 in Japan) and/or vancomycin-resistant *Staphylococcus epidermidis* (VRSE).

G. This policy is DHCS's plan for detecting, preventing and controlling infection and colonization with VRE.

II. SPECIFIC

A. Prudent vancomycin use

1. Comprehensive antimicrobial utilization plan to provide education to medical staff, oversee surgical prophylaxis, and develop guidelines for the proper use of vancomycin.

2. Situations in which the use of vancomycin is discouraged:

a. Treatment in response to a single blood culture positive for coagulase-negative staphylococcus, if contamination of blood culture is likely.

b. Continued empiric use for presumed infection when cultures are negative for Beta-lactam-resistant Gram-positive microorganisms.

c. Empiric antimicrobial therapy for a febrile neutropenic patient, unless there is strong evidence that infection caused by Gram-positive organisms is likely.

d. Treatment (chosen for dosing convenience) in patients with renal failure.

e. Primary treatment of antibiotic-associated colitis.

f. Routine surgical prophylaxis OTHER THAN in patients with life-threatening allergy to Beta-lactam antibiotics.

g. Use of vancomycin for topical application or irrigation. Parameters of vancomycin use are monitored through the drug utilization review of the pharmacy and therapeutics committee.

B. Role of the Microbiology Laboratory in the Detection, Reporting, and Control of VRE

1. Identification of Enterococci

a. Colonies of enterococci are presumptively identified by using colonial morphology and Gram stain.

b. Biochemical tests are used to differentiate among the various enterococcal species on isolates from normally sterile body sites and under special circumstances.

2. Antimicrobial Susceptibility Testing

a. Vancomycin resistance and high-level resistance to ampicillin and aminoglycosides is determined for enterococci isolated from blood, sterile body sites (with the exception of urine), wounds, and other sites as clinically indicated. Urine is done upon request.

b. Plates are incubated for 24 hours when sensitivity testing is performed.

3. When VRE is Isolated from a Clinical Specimen

a. Positive cultures are sent to WRAMC laboratory when vancomycin resistance is confirmed by a combination of disk diffusion, MIC, and a 6 ug/mL vancomycin screening plate.

b. When performing confirmatory susceptibility tests, the patient's primary physician is notified by telephone and the HICO is notified via the CHCS flagged organism message. Infection Control Service personnel will call Microbiology Lab

when a flag appears with vancomycin pending to determine if vancomycin resistance is suspected or if a lab problem occurred. If vancomycin resistance is suspected, the HICO will request isolation of the patient.

4. Screening Procedures for Detecting VRE: All enterococcal isolates, including those from urine and wounds, from inpatients are screened routinely for vancomycin resistance.

C. Prevention and Control of Hospital Associated Transmission of VRE

1. Clinical staff should be notified immediately upon detection of VRE so the colonized or infected patient can be placed on isolation precautions.

2. Expanded Contact isolation Precautions to Prevent Patient-to-Patient Transmission of VRE

a. Place patient in private room, preferably one with an anteroom. Negative pressure is not required.

b. Obtain and use a chlorhexidine gluconate antimicrobial soap (2% Dynahex). DO NOT use Betadine or the in-room soap dispenser.

c. Gown and gloves are required for all persons entering the room REGARDLESS of the anticipated contact with the patient, equipment, or environmental surfaces. This organism is transmitted by direct contact with the patient and room equipment (e.g., furniture; bedding; overbed tables; monitors; medical devices such as thermometers, commode chairs; and frequently-handled objects/surfaces such as faucets, countertops, light switches, bed rails, and door knobs).

d. Change gloves and wash hands after contact with stool (contains high concentrations of enterococci).

e. Change gloves when handling other materials such as respiratory secretions, wound exudates, etc. that may contain high concentrations of VRE (check positive VRE culture sites).

SECTION 11 - Vancomycin Resistant Enterococcus (VRE), continued

f. When exiting the patient room, care must be taken to avoid contaminating clothing and/or hands: Remove gown/gloves before leaving patient room. Wash hands; use paper towel to turn off faucets. and use a paper towel to handle door knob when exiting.

g. Dedicate equipment for patient's exclusive use. This includes stethoscopes, thermometers, BP cuff, commode chairs, IV pumps, controllers, IV poles, etc. DO NOT take patient charts into and out of the room. If equipment, e.g., bed scales, EKG machine or anything which contacts the patient or a room surface cannot be dedicated, then clean thoroughly with Cavicide before next patient use.

h. Trash. Handle trash as with other patients. Transport full trash containers

directly to pick-up point. DO NOT leave trash containers in hallways or other interim areas.

i. Dietary Trays. Handle dietary trays as with other patients. Take trays directly to tray cart. Do not allow trays to sit on kitchen counters or other surfaces (ante-room surfaces, med carts, trash cans, hallway desks or chairs, etc.). Other food (snacks, food brought by visitors) may not be removed from the room for re-heating or storage anywhere else on the unit. Paper isolation trays are not necessary and will not be used.

j. Linen. Handle linen as with other patients (wear gloves, place wet linen in plastic bags, etc.) in addition to the following: Dedicate a linen hamper to the patient room, change bag when 2/3 full, take full linen bag directly to pick-up point, do not leave linen bags in hallways or other interim areas.

k. Visitor Policy. Instruct visitors in proper handwashing techniques. All visitors must wash hands upon entering and leaving the patient room. Visitors should wear gowns and gloves and be instructed in appropriate wear and removal.

j. Room Cleaning. Rooms must be cleaned daily using the same procedures as in other isolation rooms.

3. Obtain stool cultures or rectal swabs on roommates of the VRE patient to determine their colonization status and apply isolation precautions as necessary. The HICO will assist in determining patients in critical care areas who would need to be cultured.

4. Removal from Isolation. The optimal requirements for removal of patients with VRE from isolation precautions have not yet been determined. Since VRE colonization may persist indefinitely and effective strategies for eradication are not known, patients should remain in isolation for the duration of their hospitalization, and must be isolated again upon each hospital admission.

5. Patient Transfer. If transferring the patient, notify the receiving unit of the patient's VRE status.

D. The HICO will monitor process and outcome measures as determined by the Infection Control Plan.

E. The Performance Improvement Committee will request strain typing of VRE isolates when appropriate to assist in defining reservoirs and patterns of transmission.